



UNITED STATES PATENT AND TRADEMARK OFFICE

AS  
UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/869,123	10/03/2001	Karsten Reihs	209774US0PCT	2354

22850 7590 08/08/2002

OBLON SPIVAK MCCLELLAND MAIER & NEUSTADT PC  
FOURTH FLOOR  
1755 JEFFERSON DAVIS HIGHWAY  
ARLINGTON, VA 22202

EXAMINER

RIBAR, TRAVIS B

ART UNIT	PAPER NUMBER
----------	--------------

1711

DATE MAILED: 08/08/2002

//

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/869,123

Applicant(s)

REIHS ET AL.

Examiner

Travis B Ribar

Art Unit

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 01 July 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-51 is/are pending in the application.
- 4a) Of the above claim(s) 11-26 and 29-51 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 27 and 28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of claims 1-10 and 27-28 in Paper No. 10 is acknowledged. The traversal is on the ground(s) that a) group 2 depends from group 1 and therefore is not restrictable, b) groups 1-6 share a common special technical feature and therefore fall under the unity of invention standard, c) Nitowski et al. does not anticipate the present invention, and d) that the office has not shown that a burden exists in searching the entire application. These arguments are not found persuasive for the following reasons.

The special technical feature of the invention exists in the prior art (discussed below) and therefore no single general inventive concept exists in the present application. The references discussed in this office action are also deemed to be more relevant to the current invention than the Nitowski reference cited as the earlier basis for restriction. Since the special technical feature exists in the prior art, the restriction made in the previous office action is deemed proper.

Regarding the argument that the office has not shown that there is a burden to search the entire application, the examiner notes that this application falls under the restriction practices set forth by the Patent Cooperation Treaty. As such, the existence of a lack of unity between the groups is sufficient to restrict the application. Specifically noting the differences between groups 1 and 2, these groups represent separate and patentably distinct inventions, with the inventions of each group having their own distinct issues of patentability.

The requirement is still deemed proper and is therefore made FINAL.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-10 and 27-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
4. Claim 1 recites the limitation "...F..." in line 4. There is insufficient antecedent basis for this limitation in the claim. The examiner believes that this should read, "...f..." and examined the claim accordingly.
5. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86

Art Unit: 1711

USPQ 481 (Bd. App. 1949). In the present instance, claim 1 recites the broad recitation, "...hydrophobic..." and the claim also recites, "...oleophobic..." which is the narrower statement of the range/limitation.

6. Also in the present instance, claim 7 recites the broad recitation, "...aluminum-magnesium alloy..." and the claim also recites, "...AlMg<sub>3</sub>..." which is the narrower statement of the range/limitation.

7. In the above instances where the applicant claims both a broad range and a narrow range, the examiner gave the claims the broadest interpretation in order to examine them.

8. Regarding claims 1-10 and 27-28, it is unclear from the language of the claim what the term 'structured surface' encompasses. It is unclear whether or not the 'structured surface' encompasses only the top layer of material in a structure or the entire structure. For the purposes of this examination, these claims will be presumed to mean that 'structured surface' encompasses the entire structure.

9. Claims 3-10 and 27-28 recite the limitation "...ultraphobic surface..." in their preambles. There is insufficient antecedent basis for this limitation in the claims.

### ***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1-6, 8-10, and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Clark et al.

Clark et al. discloses functionalized films that give ultraphobic properties to a substrate. The substrate is a metal (column 6, lines 15-17) or a polyimide (example 1), (claims 5-6 and 8-9) and the coated substrate demonstrates ultraphobic behavior, with contact angles on the order of  $171^\circ$  (column 6, lines 48-52), meeting this part of claims 3 and 4. Further, the surfaces are such that water rolls of at the “slightest inclination of the substrate” (column 6, lines 52-53). The examiner assumes that the term “slightest inclination” in Clark et al. is less than  $10^\circ$ , thereby meeting this aspect of claim 3.

The surface in Clark et al. is coated with a Langmuir-Blodgett film that gives it ultraphobic properties. Langmuir-Blodgett films are inherently amphoteric and also meet the definition of “hydrophobic phobicization auxiliary.” As such, Clark et al. also fulfills claims 10 and 28.

Clark et al. does not specify the value of S as the applicant does in claims 1 and 2. However, the applicant has not shown that the value of S is independent of the contact angle of the substrate. It appears from the current application, see table 1, that any ultraphobic surface having a contact angle above  $150^\circ$  would inherently have a surface topography with the value of S in claims 1 and 2. Therefore the examiner deems that the structure in Clark et al. meets the S value requirement of claims 1 and 2.

12. Claims 1-5, 8, and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Takahashi et al.

Takahashi et al. discloses a water repellent coating composition. It teaches that the coating composition yields contact angles up to  $156^{\circ}$  (example 1, meeting the applicant's claims 3 and 4) and that the substrate can be polyurethane (claims 5 and 9 in Takahashi et al. meeting the applicant's claims 5, 8, and 27).

Takahashi et al. does not specify the value of S as the applicant does in claims 1 and 2. However, the applicant has not shown that the value of S is independent of the contact angle of the substrate. It appears from the current application, see table 1, that any ultraphobic surface having a contact angle above  $150^{\circ}$  would inherently have a surface topography with the value of S in claims 1 and 2. Therefore the examiner deems that the structure in Takahashi et al. meets the S value requirement of claims 1 and 2.

Takahashi et al. also does not disclose a roll-off angle, as the applicant does in claim 3. The examiner's position is that since the contact angle in Takahashi et al. is the same as the contact angle in claims 3 and 4 and since the surface in Takahashi et al. is designed to be water repellant, the surface in Takahashi et al. will inherently possess the roll-off angle that the applicant claims in claim 3.

### ***Claim Rejections - 35 USC § 103***

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Clark et al. in view of Baumann et al.

Clark et al. is applied to claim 6 as discussed above, but does not explicitly state that the metal that is used can be an aluminum-magnesium alloy. Baumann et al. discloses an aluminum-magnesium alloy useful in the preparation of airplane fuselage surfaces (column 1, lines 45-46). It is well known in the art that it is advantageous to have an ultraphobic surface coated on an airplane fuselage in order to prevent ice from forming on the fuselage in cold weather.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the coating in Clark et al. on the aluminum-magnesium substrate in Baumann et al. The motivation for doing so would be to provide an airplane fuselage surface that resists ice formation. Therefore it would have been obvious to combine Baumann et al. with Clark et al. to obtain the invention as specified in claim 7.

15. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al. in view of Baumann et al.

Takahashi et al. is applied to claim 1 as discussed above, and shows that the water resistant coating can be used on airplane fuselages (figure 17), but does not disclose the exact metal from which the fuselage is made. Baumann et al. discloses an aluminum-magnesium alloy useful in the preparation of airplane fuselage surfaces (column 1, lines 45-46). It is well known in the art that it is advantageous to have an



Art Unit: 1711

ultraphobic surface coated on an airplane fuselage in order to prevent ice from forming on the fuselage in cold weather.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the coating in Takahashi et al. on the aluminum-magnesium substrate in Baumann et al. The motivation for doing so would be to provide an airplane fuselage surface that resists ice formation. Therefore it would have been obvious to combine Baumann et al. with Takahashi et al. to obtain the invention as specified in claims 6 and 7.

### ***Conclusion***

16. The enclosed European search report is noted by the examiner and the art applied in this office action is considered more relevant than that found within the search report.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Travis B Ribar whose telephone number is (703) 305-3140. The examiner can normally be reached on 8:30-5:00 Monday through Friday.

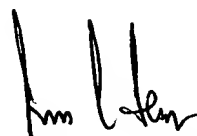
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (703) 308-2462. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Art Unit: 1711

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Travis B Ribar  
Examiner  
Art Unit 1711

TBR  
August 5, 2002



James J. Seidleck  
Supervisory Patent Examiner  
Technology Center 1700